



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D3391-021
Job Sheet 168760



Part No: D3391-021

Job Qty: 1 ea

Part Name: Fwd Tube Assembly



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 11/22/17

Job Tracking No:

Due Date: 12/8/17

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV J SHEETS 4,5 IPP A 05.09.13 New issue KJ/JLM IPP B IPP C IPP D 07.03.13 rev F dwg EC IPP E 07.11.07 revG dwg ecn1053P EC verified by: DD IPP Rev:f ECN 1056 07-11-12 DD verified by: EC IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC IPP Rev I 09.02.02 added hardware EC verified by: DD IPP Rev:J 11.11.14 AS PER REV.I DD verified by:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		12/7/17	0.00	0.00	Start Up Skidtubes		
100	Skid tubes	1 pcs		12/7/17	0.00	0.82	Skid tubes		MLG
110	CNC Bend Skid tubes	1 pcs		12/7/17	0.00	1.00	CNC Bend Skid tube		MLG
120	QC	1 pcs		12/7/17	0.00	0.00	QC5		SK
130	CNC Vertical Machining	1 pcs		12/7/17	2.21	1.00	HAAS 1		ML
140	QC	1 pcs		12/7/17	0.00	0.00	QC2		ML
150	Mill Conv	1 pcs		12/7/17	0.00	0.27	Mill Conv 1		J.C. 17-12-11
160	QC	1 pcs		12/7/17	0.00	0.00	QC2		J.C. 17-12-11
170	QC	1 pcs		12/7/17	0.00	0.00	QC8		A.P. 17-12-11
180	Skid tubes	1 pcs		12/7/17	0.00	0.82	Skid tubes		AP 2017-12-15
190	QC	1 pcs		12/7/17	0.00	0.00	QC5		AK 17-12-15
200	HandFinish	1 pcs		12/7/17	0.00	0.33	HandFinish1		DEB 17/12/16
210	QC	1 pcs		12/7/17	0.00	0.00	QC7		JV
220	Skid tubes	1 pcs		12/7/17	0.00	0.82	Skid tubes		AP 2017/12/20
230	QC	1 pcs		12/7/17	0.00	0.00	QC5		AK 17-12-21
235	HandFinish	1 pcs		12/7/17	0.00	0.33	HandFinish2		2017-12-31
241	Spray Paint	1 pcs		12/7/17	0.00	0.99	Spray Paint		POD 38670
250	QC	1 pcs		12/7/17	0.00	0.00	QC14		del val / bob
254	HandFinish	1 pcs		12/8/17	0.00	0.33	HandFinish4		del val / bob
256	QC	1 pcs		12/8/17	0.00	0.00	QC5		del val / bob
260	Packaging	1 pcs		12/8/17	0.00	0.00	Packaging3		del 12/12/17
280	QC21-SA	1 Ea		12/8/17	0.00	0.00	QC21		

Part Op 100 - Cut as per dwg.

Descriptions: 110 - Bend as per Dwg D3391 Using Bend Prog 3391021

130 - 1-Machine as per Folio FA590 Rev. AA & Dwg D3391 Rev. 3

150 - Drill X1 Aft cap as per Dwg D3391 .1875" dia

180 - 1-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step 2-Drill float bag holes as per Dwg D3391 using DT8798 (Do not open tow cap holes to finish size) (ONLY DRILL HOLES MARKED "A") 6-Deburr & Scribe Batch number Inside aft end. 7-Transfer drill D3391-021 with D3391-023

220 - 1-instal spacers as per dwg D3391 A/R Magnabond 6398 batch: M137712 exp. date: 2018/01 cure time 12hrs. as per QSI015 2- grind crossbolt flush 3-back drill crossbolt if necessary

235 - AND REALODINE AS PER QSI 005

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____

Dart Aerospace Ltd.
 1270 Aberdeen Street
 Hawkesbury, ON K64 1K7
 CANADA
 TEL: 1 613 632-5200
 Email: sales@dartaero.com
 www.dartaerospace.com

Da

Start up Operation
 Mfg Date: 12/05/17
 Job No: 168760

D3391-021

Environ
 Di
 Doc/l
 Equip/Too
 Handling/l
 Mater
 Internal Transpo
 Tribal Knowledge
 LOA

DART
 AEROSPACE

S017279**Fwd Tube Assembly**

PART NO:
Revision:
Operation:
Change No:

twist in Tube
 Marks/Chatter

IN

work ☐
 trap ☐
 s-is ☐
 red ☐

Skid-tube ☐
 Machining ☐
 Thermoforming ☐
 Large Fab ☐

Cross tube ☐
 Small Fab ☐
 Finishing ☐
 Composite ☐

Water Jet ☐
 Prod. Eng. Coord. ☐
 Rec/Store/Packaging ☐
 Supplier ☐

Engineering ☐
 Quality ☐
 Other ☐

QTY Effective :

MRB (QS1042) Approval

Disposition

Completed By

Lead hand / Supervisor
Approval VerificationQC / QA Coordinator
Approval**FAULT CATEGORY**

☐ Temperature/Cure
☐ Set-up
☐ BOM/Route
☐ Broken/Damage/Defect
☐ Inspection Incomplete/Unqualified
☐ Contamination
☐ Countersink
☐ Cut Too Short
☐ Instructions Incomplete/Unclear
☐ Drill Holes

☐ Power Loss/Surge
☐ Folio/Program
☐ Grain
☐ Weld
☐ Wrong Stock Pulled
☐ Out of Sequence
☐ Off-set
☐ Misabeled
☐ Fit/Function
☐ Misaligned/off center

☐ Positioned Wrong
☐ Outside Dimensions
☐ Over/Under tolerance
☐ Part Incorrect
☐ Part Lost/Missing
☐ Part Moved
☐ Drawing
☐ Finish
☐ Misread
☐ Turning Sequence

Past Expiry Date ☐Manufacturing Process ☐Misidentified ☐Past Due ☐

OTHER :

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D6013-047 <i>B86064</i>	1	63	0	0
220-Skidtubes <i>FM135998-2</i>	D3670-4-200 <i>M165393</i>	4	78	0	0
254-HandFinish	AELS-1032-225 <i>AL61</i>	10	0	0	0
	AN3C4A <i>5000533</i>	10	1,093	0	0
	D3401-041 <i>F155540</i>	1	11	0	0
	D3672-1 <i>F150074</i>	4	1,741	0	0
<i>M159902-120</i>	D4095-051	1	40	0	0
	NAS1149C0332R <i>FM138409-1</i>	10	3,419	0	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		FAULT CATEGORY Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐ OTHER : ☐			

DART AEROSPACE LTD	Work Order:	168760
Description: Float Skidtube (412)	Part Number:	D3391-1
Inspection Dwg: D3391 Rev: J		Page 1 of 1

INSPECTION SHEET

[illegible]

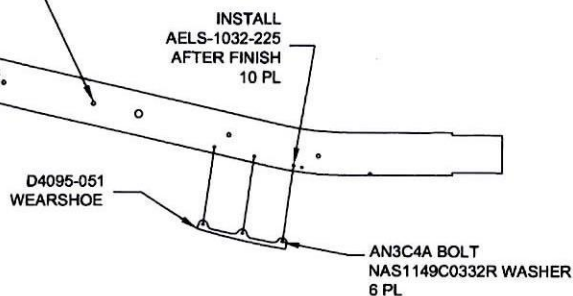
Measured by: <i>[Signature]</i>	Checked by: <i>[Signature]</i>	QC Inspector:
Date: 17/12/09	Date: 17-12-11	Date:

Engineering Approval: (If necessary)		Date:	
--	--	--------------	--

Rev	Date	Change	Revised by	Approved
A	06.04.27	New Issue P/O D3391-011/-021	KJ/JLM	
B	06.06.19	Tolerances revised per D3391 Rev. E	KJ/JLM	
C	07.03.21	Dimensions removed per Dwg rev. F	KJ/JLM	
D	07.11.23	Dwg Rev. updated	KJ/EC/DD	
E	09.12.14	Dwg Rev updated	KJ	
F	11.06.21	Dimension 0.500 added	KJ	
G	12.05.15	Dwg Rev updated	KJ	
H	16.06.23	Dimensions updated per Dwg Rev J	KJ	

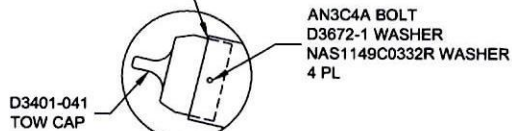
INSTALL D3670-4200 SPACER
SEAL WITH MAGNOBOND 6398
GRIND FLUSH
PRIOR TO PAINTING
4 PL

DETAIL B



D3391-021 FWD TUBE ASSEMBLY
ASSEMBLY DETAIL

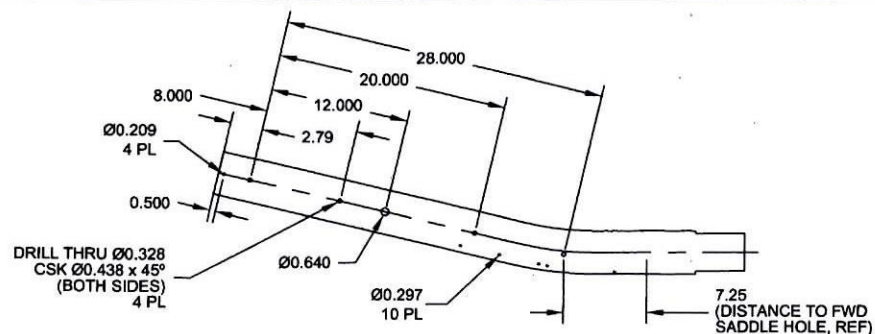
SEAL WITH
SIKAFLEX-241/-291



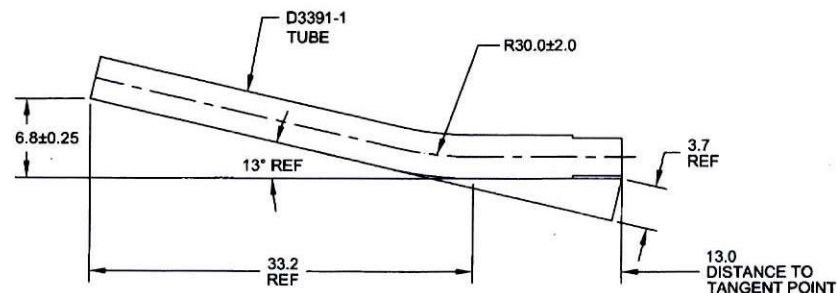
DETAIL B
SCALE 2X

D3391-021 FWD TUBE ASSEMBLY PARTS LIST

QTY -021	PART NUMBER	DESCRIPTION
X	D3391-021	FWD TUBE ASSEMBLY
1	D3391-1	TUBE
1	D3401-041	TOW CAP
4	D3670-4200	SPACER
4	D3672-1	WASHER
1	D4095-051	WEARSHOE
10	AELS-1032-225	INSERT
10	AN3C4A	BOLT
10	NAS1149C0332R	WASHER



D3391-021 DRILLING DETAIL

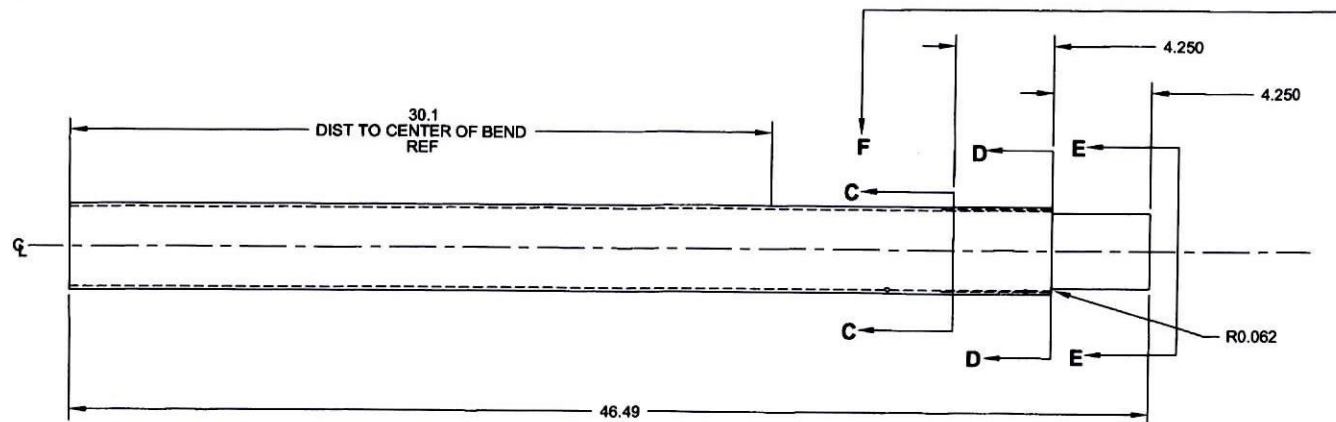


D3391-021 BENDING DETAIL
(MAKE FROM D3391-1)

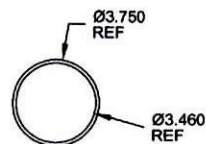
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. *165765 M-3*
12-11-22

RELEASED
2016-04-28

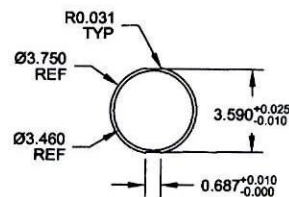
DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	<i>DR</i>	D3391	SHEET 4 OF 11
APPROVED	<i>DR</i>	TITLE	SCALE
DE APPR.	<i>DR</i>	412 FLOAT SKIDTUBE	NTS
DATE	16.01.14	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



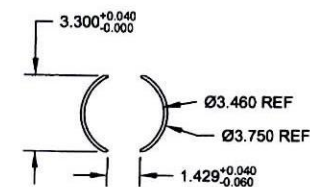
D3391-1 TUBE
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



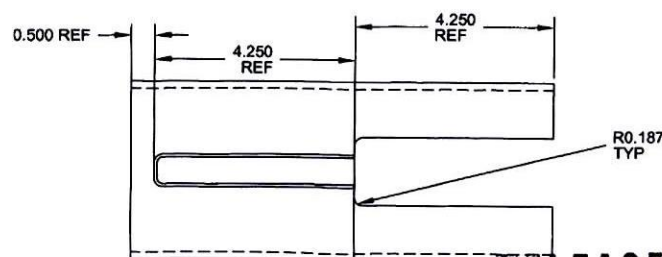
SECTION C-C



SECTION D-D



SECTION E-E



VIEW F-F
SCALE 2X

RELEASED
2016-04-28

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.	22	D3391	SHEET 5 OF 11
APPROVED	22	TITLE	SCALE
DE APPR.	22	412 FLOAT SKIDTUBE	NTS
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